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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/596,403

06/12/2006

Hakim DI Lodovico

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EXAMINER

CHOU, ALBERT T

ART UNIT

PAPER NUMBER

2416

NOTIFICATION DATE

DELIVERY MODE

01/15/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

tammy@ppglaw.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/596,403	<b>Applicant(s)</b> DI LODOVICO ET AL.	
	<b>Examiner</b> ALBERT T. CHOU	<b>Art Unit</b> 2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 19-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/16/2007</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Response to Amendment*

1. Applicant's Preliminary Amendments filed on June 12, 2006 have been entered. Claims 1-18 have been canceled. Claims 19-30 have been added. Claims 19-30 are pending in this application, with claims 19 and 25 being independent.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 22 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22 and 28 recite "*reserving a first portion of the frame for the storing of bandwidth request information, the size of the first portion of the frame being sufficient to address  $RTT + (Nrg - 1)$  slots in the frame, wherein  $RTT$  is the Round Trip Time and  $Nrg$  is the number of different request groups in a terminal.*"

The claim limitation is not clear and thus indefinite, since it is not clear what or which "frame" the claims 22 and 28 are referring to.

Art Unit: 2416

Claims 22 and 28 depend from claims 19 and 25, respectively. However, there is no "frame" recited in either claim 19 or claim 20.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 19-30 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,785,252 to Zimmerman et al. (hereinafter "Zimmerman"). Since US Patent No. 6,016,311 to Gilbert et al. (hereinafter "Gilbert") is incorporated in Zimmerman by reference [**col. 1, lines 14-21**], Examiner considers Gilbert is formed as parts of Zimmerman's disclosures.

Regarding claims 19 and 25, Zimmerman teaches a polling based method of scheduling and a distributed scheduler for frame based communication [**Figs. 1, 4-6 & 13; a polling-based uplink traffic data scheduler; col. 12, lines 14-23, line 48 – col. 13, line 6**] between a plurality of terminals and a master controller [**Figs. 1, 4-6 & 13;**

Art Unit: 2416

**CPEs 110 and Base Station 106 ; col. 12, lines 14-23, line 48 – col. 13, line 6],**

comprising:

a plurality of concentration elements for local scheduling of upstream data **[Figs. 1 & 13; e.g. Base Stations 106 for scheduling upstream data from CPEs 100],**  
wherein:

the plurality of concentration elements and the plurality of terminals are partitioned over a plurality of cells distributed on a multiple hierarchical level star topology **[Figs. 1 & 13; Base Stations 106 for scheduling upstream data from associated CPEs 100, i.e. a point-to-multipoint or star topology; col. 9, lines 27-29],** each cell belonging to a hierarchical level N, where N is comprised between a top level, corresponding to a single cell to which the master controller is assigned **[Gilbert: Figs. 4, 5 & 9; e.g. Hub 114/Cluster Controller 162; col. 13, line 60 – col. 14, line 6],** and a bottom level **[Gilbert: Fig. 4, or Zimmerman: Figs, 1 & 13; Cell 102];**

at each cell at level N, one concentration element is the master element for the cell **[Figs, 1 & 13; e.g. Base Station 106 (I/F to CPEs 100) is the master element for Cell 102]** and the remaining concentration elements and terminals in said cell are slave elements of the master element for the cell **[Gilbert: Fig. 8; Wireless Gateway 142' and/or Multi-Service Concentrator 156, and CPEs (Terminals) 110' within Business Customer Site 112; col. 12, lines 8-41];**

each master element in a cell at level N is in turn a slave of the master element in one of the cells at level N +1 **[Gilbert: Figs. 4, 5 & 9; Base Station 104 is a slave of Hub 114/Cluster Controller 162; col. 13, line 60 – col. 14, line 6],** the master element

Art Unit: 2416

at the top level being the master controller **[Gilbert: Figs. 4, 5 & 9; Cluster Controller 162; col. 13, line 60 – col. 14, line 6];**

each master element at level N comprises:

means for collecting uplink aggregate requests and flows originating from the slave elements thereof **[Figs. 1 & 13; Base Station 106 receives bandwidth requests from CPEs 110; col. 22, lines 37-45];**

means for generating, according to flow service categories, an aggregate flow and aggregate uplink requests **[Figs. 1 & 13; Base Station 106 aggregates the CPE queues by reconstructing CPE QoS1-QoS<sub>n</sub> (service classes) into physical channel QoS1-QoS<sub>n</sub> (service classes); col. 22, lines 37-45]**, which are input to the master element at level N+1 to which the master element at level N is slave **[Figs. 1 & 13; Gilbert: Figs. 4, 5 & 9; Base Station 106, the slave, inputs the aggregated request to Hub 114/Cluster Controller 162; col. 13, line 60 – col. 14, line 6];** and

means for allocating bandwidth to each connected slave according to said aggregate requests and to the available bandwidth **[Fig. 13; BW request and BW allocation map; col. 7, lines 34-39, col. 21, lines 54-62];** and

each slave element at level N comprises aggregating flows means which aggregate flows according to said flows categories **[Figs. 1 & 13; CPE aggregates queues QoS1-QoS<sub>n</sub>, which are based on service classes; col. 22, lines 37-45]** and, at each polling period, send aggregate bandwidth requests to the corresponding master element at level N **[Figs. 1, 4-6 & 13; A base station polls on one or more CPEs and**

Art Unit: 2416

**allocates BW specifically to allow CPEs to transmit; col. 12, lines 14-23, line 48 – col. 13, line 6].**

Regarding claims 20 and 26, Zimmerman teaches the scheduler comprising polling means that, at each master element, are set so as to recalculate aggregate requests at each polling period or multiple thereof **[Fig. 5, steps 508, 516 & 518; col. 16, lines 7-25].**

Regarding claims 21 and 27, Zimmerman teaches the scheduler, wherein a first portion of the upstream frame stores bandwidth request information, the size of said first portion of the frame being sufficient to address all the slots in the frame **[Fig. 4; col. 11, lines 43-58].**

Regarding claims 22 and 28, Zimmerman teaches the scheduler, wherein:  
a first portion of the frame is reserved for the storing of bandwidth request information **[Fig. 4; Bandwidth Request Contention Slot 404; col. 11, lines 43-58]**, the size of the first portion of the frame being sufficient to address  $RTT + (Nrg - 1)$  slots in the frame, wherein RTT is the Round Trip Time and Nrg is the number of different request groups in a terminal **[Fig. 4; the size of uplink sub-frame including and thus sufficient to address, Bandwidth Request Contention Slot 404 (requests) and Scheduled Data 406; col. 11, lines 43-58, col. 12, lines 14-28];** and

Art Unit: 2416

the remaining request information on traffic slots is piggybacked in the upstream frame **[Figs. 4 & 11; piggybacking bandwidth requests; col. 13, lines 27-41; col. 21, lines 35-43]**.

Regarding claims 23 and 29, Zimmerman teaches the scheduler, wherein the bandwidth request information comprises guaranteed bandwidth requirements and excess bandwidth requirements **[Fig. 1; col. 9, lines 3-26; Figs. 4 & 11; piggybacking bandwidth requests; col. 13, lines 27-41; col. 21, lines 35-43]**. .

Regarding claims 24 and 30, Zimmerman teaches the scheduler, further comprising, at each master element, means for integrating the requests of granted bandwidth over a time window of length  $IT$ , where  $IT$  is an integer multiple of the polling time period, so as to dynamically adjust the guaranteed quote for each slave element **[col. 5, lines 56-65, col. 6, lines 6-22, 30-43]**.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert T. Chou whose telephone number is 571-272-6045. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H. Pham, can be reached on 571-272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2416

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Albert T Chou/

Examiner, Art Unit 2416

January 9, 2009